

LETTER TO THE EDITOR

Habitat preference in the Lepidoptera and patterns of distribution in light-traps.— I was most interested to read the results of Majerus *et al.* (1994) concerning light-trapping comparisons in woodland and grassland. As they report, I also found significant and persistent differences in the abundance of particular species when comparing two or more habitats within woodland, and readers will not be surprised to read of greater differences between woodland and open grassland where there are likely to be differences relating to shelter and wind speed as well as habitat type. In fact, interesting comparisons between catches in grassland and woodland were reported by Hosny (1953, 1955, 1959) way back in the infancy of mercury vapour light traps.

As Majerus *et al.* discuss, reasons for these patterns of distribution can be expected to relate to various factors. Amongst these are the relatively weak flight of many geometrids and the dependence of a large proportion on woody perennials for food as larvae. No British geometrid moths feed as larvae on grasses, unlike the larvae of many of the noctuids, and low herbaceous plants of open conditions are also exploited widely by noctuids, many of which are strong fliers, able to fly higher and in windier conditions than most geometers.

Just as with butterflies, presence of the larval foodplant is not enough to guarantee the presence of the moth. Very often the situation in which the plant is growing proves to be important, with some species of larvae occurring more frequently in sunny situations, others in shade, and with differences between abundance or density on mature trees and shrubs and on regrowth. Some results illustrating these differences are given in Waring (1990).

A particularly interesting example in the British context is provided by Shaw (1991) who found larvae of the magpie moth, *Abraxas grossulariata*, and the V moth, *Semiothisa wauaria*, only on gooseberry bushes growing in sunny locations, while those of the phoenix, *Eulithis prunata*, were found only on more or less fully shaded gooseberry bushes in woodland understorey.

My Ph.D. thesis (Waring, 1990) includes many other examples, some of which clearly relate to local differences in the availability of particular species of plants and even to the proximity of a single tree or bush. However, as Bowden (1982) suggests, and I found, some apparent patterns of distribution can be artifacts of the trapping technique, such as differences in the visibility of individual traps or the degree of shading and contrast between the light-trap and its background. In Waring (1990) I explored several different methods of evening out and correcting for such factors using species expected to have uniform distribution. By looking at the ratio in which moths actually occur in traps and comparing the distributions of other species against this empirical ratio, it was hoped that it might be possible to correct for the resultant combination of all the factors which might be biasing trap results, such as one site being slightly warmer, windier or more shaded than another. Needless to say, the results depended on which species I selected as my bio-indicator: the large yellow underwing, *Noctua pronuba*, riband wave *Idaea aversata* and the small fan-footed wave *I. biselata*. In practice I found that in the real world each of these species let me down sooner or later, appearing to favour one habitat in preference to another.

For many species the pattern of distribution between habitats was the same no matter what method of analysis I chose, the latter affecting only the degree of difference in the comparisons. I repeat the advice I gave in Waring (1989) to all moth recorders interested in using light-traps for looking at differences between habitats and management regimes—make things easy for yourself—try and ensure that all traps which you wish to compare with each other are operated under an open sky, or

all under tree canopy, and that they are visible for about the same distance. This makes the comparisons much simpler and the results much more easy to interpret. For other tips on the practicalities of light-trapping, readers may find Waring (1994) and the references listed there of interest.

Lastly, I am sure readers will look forward to reading the results of Dearnaley *et al.* (referred to as "in prep." in Majerus *et al.* 1994 p129 para. 4) when this study is published. There is already a large body of literature reporting that the effectiveness of light-traps is influenced by trap design, bulb height and the height of the trap above ground. It is also known that the performance of bulbs deteriorates with age and use. Just for the record, all the traps in the experiments reported by Waring (1989, 1990) were operated on the ground. All the tubes and bulbs for the traps were purchased new at the start of the experiments and the tubes in the actinic light traps were replaced at the start of each year. In all comparisons the traps were operated all night in order to sample as large a range of moths and their possible times of flight as possible. These and other experimental details, including dates and sites, are given in full in Waring (1990).—PAUL WARING, Windmill View, 1366 Lincoln Road, Werrington, Peterborough PE4 6LS.

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SHORT COMMUNICATIONS

Deadwood Coleoptera from two important Denbighshire parklands, including five species new to Wales.—Two National Trust owned historic parks, Chirk and Erddig, have received very little attention from entomologists in the past, but have now proved to be of considerable interest for their deadwood fauna. Both were visited in 1993 as part of the Trust's national programme of biological survey. The park at Chirk originated as a 14th century hunting park, while the early history of Erddig is not yet known.

Erddig Park (SJ326482) straddles the Black Brook immediately above its confluence with the Clywedog River and therefore encompasses ancient river-cliff woodland within its present bounds. Amongst the more interesting finds are a